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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,863	02/08/2006	Mikio Ikenishi	Q86726	9001

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EXAMINER	
FALASCO, LOUIS V	

ART UNIT	PAPER NUMBER
1794	

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03/03/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,863	IKENISHI ET AL.	
	Examiner	Art Unit	
	LOUIS FALASCO	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/19/08*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *2-4,16,23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5-15 and 17-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/28/05;4/25/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Papers Received

1. The Information Disclosure Statement filed 12/19/08 is acknowledged.

2. The election of invention filed on 12/19/08 is acknowledged.

Claims

3. The claims are 1-23

Election/Restriction of Invention

4. Applicant's election without traverse of Group II claims 5-15 and 17-22, in the reply filed on 12/19/08 is acknowledged. It was noted that claim 1 serves as a linking claim for the elected inventions of claims 5, 6, 8-15 and 22, so will be examined in this action.

Claim Rejections - 35 U.S.C. §103

Statutory Basis

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Rejections

6. Claims 1, 5, 11-14, 19-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over **Hashimoto et al** (US 6332338) taken with either **Hayashi et al** (US 5900296) or **Koch et al** (US 5938812).

Hashimoto et al (US 6332338) teaches a chemically reinforced recording medium substrates that includes CaO within the claimed 2-25%; SiO_2 within the claimed 47-70%; Al_2O_3 within the claimed 1-10% and Na_2O within the claimed 1-10% (**Hashimoto et al** col. 4 lns 20-25,41-64; col. 5 lns 6-32; col. 9 lns 47-54). This is taught with SiO_2 and Al_2O_3 totaling 57-80%, noting **Hashimoto et al** SiO_2 optimized to 35-65% and Al_2O_3 to 9.5-12% (**Hashimoto et al** col. 5 lns 56-64, col. 6 lns 55-58). **Hashimoto et al** also teaches balancing melt and T_g with TiO_2 and ZrO_2 and ZnO with 0-10%, 0-12% ands 0-10% respectively as claimed (**Hashimoto et al** col. 2 ln 1, col. 8 ln 49, col. 9 lns 7-10, Table 5 at col. 19 lns 13-10); **Hashimoto et al** teaches balancing glass transition temperature (Tg) with *Young's Modulus* levels by replacing parts Na_2O to an optimal molar percent of K_2O, within the claimed limits (**Hashimoto et al** col. 6 lns 6-9 and 24-29). **Hashimoto et al** does not teach the addition of BaO and ZrO_2 in the glass. However the addition of BaO and ZrO_2 to glass is a convention well known in the glass art from **Hayashi et al** and **Koch et al**. The addition of BaO is a conventional additive for controlling vitrification levels by adjusting the glass transition temperature and ZrO_2 is added to increase durability by controlling hardness. This is evident from **Hayashi et al** and **Koch et al** teaching the addition of BaO and ZrO_2, in claimed amounts, optimally offsetting CaO content and SrO, ZnO and TiO_2 content (**Hayashi et al** col. 2 lns 38-39, 46-47, **Hayashi et al** col. 2 ln 4 to col. 3 ln 4-10 and **Koch et al** col.3 ln 5 to col. 4 ln 18 and col. 4 ln 24 to col. 5 ln 35) also making the total content of the above-stated

components ≥95 mole% given applicants' range for SrO, ZnO and TiO_2 at zero to 15, 10 and 10 respectively.

It would have been obvious to one of ordinary skill in the art to adopt either of **Hayashi et al** and **Koch et al** addition of BaO and ZrO_2 in the **Hashimoto et al** glass for most favorable adjustments in T_g increasing glass durability and elasticity with the Young's Modulus (**Hayashi et al** col. 5 lns 56-64 and **Koch et al** col. 6 lns 14-18).

- As regards claims 5, 11 and 19 chemically reinforced see also **Hashimoto et al** col. 8 lns 33-35; col. 12 lns 15 to col. 13 ln 5 where all examples except 25 and 26 teach strengthening and see **Hayashi et al** col. 4 ln 56 to col. 5 ln 7.
- As regards claims 12-14, 20, 21, the information recording or perpendicular magnetic recording system, the examiner notes these are well known systems. Only new claim 21 includes a layer for recording (**Hashimoto et al** see Abstract and **Hayashi et al** see Abstract calling for magnetic recording system). In claims 12-14, 20 recording is only considered an intention not given weight since applicants have not claimed a structure with any means such as a magnetic recording layer (MPEP 2111.02 and 2113).

7. Claims 6-10, 15 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Hashimoto et al** taken with either **Hayashi et al** or **Koch et al** as

applied to claims 1, 5, 11-14, 19-21 above, and further in view of **Ikenishi et al** (US 2003/0109370).

Hashimoto et al taken with either **Hayashi et al** or **Koch et al** teaches a reinforced glass except subsequent heating levels for increased strength. **Hashimoto et al** points out the claimed temperature ranges as a *transition point* teaching re-heating the glass (**Hashimoto et al** col. 4 lns 18-21, col. 10 lns 2-4 and col. 13 lns 6-9) and **Ikenishi et al** teaches heating the glass to levels claimed (instant claims 6,7,10,15) optimized for enhancing the strength needed to function as reinforced substrate for magnetic recording media system requirements (**Ikenishi et al** [0073]) improving thermal expansion (instant claim 18), a characteristics required to stabilize tracking at elevated temperatures (**Ikenishi et al** [0074]).

- As regards claims 8, 9, 17, 18 and 22 bending strength ratio prior to chemical reinforcement and product of temperature treatment, this would reasonably be expected to be the same product characteristics as the same processing conditions have been demonstrated (**Ikenishi et al** cited above) with the same composition **Hashimoto et al** taken with either **Hayashi et al** or **Koch et al** as previously cited for composition in paragraph 6. The claiming of a property, inherent for a composition known in the art does not necessarily make it patentable[1].

[1] In re Best, 195 USPQ 430, 433 (CCPA 1977); In re Crish, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004).

- As regards claims 15, 17 and 22 product of heating see **Hashimoto et al** col. 4 lns 19-27 and adjustments for thermal expansion by reheating, annealing, steps optimized to reduce thermal stress see **Hashimoto et al** col. 10 lns 1-4. col. 8 lns 25-29 and **Ikenishi et al** example 83 at [0142].

Secondary Considerations

8. A reasonable case for inherence of characteristics for product being claimed has been established. The burden of proving unobviousness is shifted to applicants when inherency has been demonstrated (MPEP 2112).

- Applicants have demonstrated unobviously superior results for strengthened recording disk of limited composition ranges, however there is no claim commensurate in scope with this showing[2]. What has been demonstrated must be limited to strengthened disks for information recording and, while applicants are not required to show unexpected superior results over the entire range, the range must be limited to a trend exemplified by probative value of the data (MPEP 2145).

	Mole % claimed	Mole % unobvious results Ex 1-9	Examiner comments on extrapolation range based on applicants' specification and prior art of record
SiO_2	**47-70**	63-65	The Mole% claimed would not be a reasonable extrapolation of 63-65% demonstrated for the presence of SiO_2 supporting unobvious Young's Modulus, thermal stability decreases with low SiO_2 levels.
Al_2O_3	**1-10**	4-5	The mole percentage claimed would not be a reasonable extrapolation of 4% for durability and thermal resistance as Al_2O_3 presence disclosed as a balance against dissolution of

[2] In re Kulling, 14 USPQ2d 1056, 1058 (Fed. Cir. 1990); In re Grasselli, 218 USPQ 769, 777 (Fed. Cir. 1983).

			alkali from the glass.
CaO	**2-25**	12-13	The mole percentage claimed would not be a reasonable extrapolation of 12-13% demonstrated for Young's Modulus and applicants" balancing of thermal expansion with T_g.
BaO	**1-15**	3-4	The mole percentage claimed would not be a reasonable extrapolation of 3-4% thermal expansion must be balanced against reductions in durability at high BaO levels.
Na_2O	**1-10**	2-4	The mole percentage claimed would not be a reasonable extrapolation of 2-4% the glass is strengthened by critical levels of K^+ substituting Na^+; the specification points to Na_2O levels in excess of 8.5 M% yielding unsatisfactory results*.
K_2O	**0-15**	5-6	The mole percentage claimed would not be a reasonable extrapolation of 5-6% demonstrated for K_2O content greater than zero M% as a balance with Na_2O.
ZrO_2	**1-12**	4	The mole percentage claimed would not be a reasonable extrapolation of 4% for unobvious Young's Modulus; high levels increase specific gravity, reducing media usefulness.
SrO	**0-15**	0	The mole percentage claimed would not be a reasonable extrapolation of 0%; unobvious results only demonstrated with SrO not present.
ZnO	**0-10**	0	The mole percentage claimed would not be a reasonable extrapolation of 0%; unobvious have only been demonstrated with ZnO not present.
TiO_2	**0-10**	0	The mole percentage claimed would not be a reasonable extrapolation of 0%; unobvious results have only been demonstrated with TiO_2 not present.

*Specification points to unsatisfactory results from the prior art above 8.5% specification at page 3:

However, from 8.5 to 15.5mol% of Na_2O is incorporated into the glass described in Patent Reference 1 to enhance the glass melt property and increase ion-exchange efficiency for chemical reinforcement. Na_2O has the effect of decreasing the Young's modulus of the glass. Thus, the glass described in Patent Reference 1 has a low Young's modulus and substrates produced from the glass have poor flatness when rotated at high speed. Nor is application to information recording media employed in perpendicular

Conclusion

The claims are 1 to 23.

- Restriction has been required. The invention elected includes 5-15 and 17-22. The examiner has examined claim 1 to the extent it is a linking claim for the elected invention.
- No claim has been allowed.
- Information Disclosure Statement has been received.

INQUIRES

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Louis Falasco whose telephone number is (571)272-1507. The examiner can normally be reached on M-F 10:30 - 7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, C. Chaney can be reached at (571)272-1284. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LF
02/09
/Louis Falasco/
Examiner, Art Unit 1794

/Kevin M Bernatz/
Primary Examiner, Art Unit 1794

February 27, 2009